

THE BIG QUESTIONS

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`./research_daemon -config genesis -interactive y` appeared next to the blinking cursor, there was a short pause, and then a dramatic key press on the “enter” key started the long process of waking the *daemon*.

Two men were seated at a desk, one at the keyboard staring intently at the screen as various diagnostic and startup messages flowed across one of the windows open on the monitor’s workspace. The man at the keyboard may once have resembled an animated scarecrow, but in his mid-fifties had put on a bit more than something in the mid-fifty-pound range than was good for him. His buttoned-down shirt was unbuttoned at the neck and wrinkled, and his gut spilled over a belt that was hanging on desperately from its very last hole. A three-day accumulation of body odor was leaking through his cologne. He might have been handsome back in his day, but decades of hiding out in this office hunched over a keyboard had done its work on his posture and complexion. Dave did not look at all well.

Off to Dave’s right, and overlooking his shoulder, was a man about Dave’s age. People who saw them together often mistook them for Laurel-and-Hardy cosplayers. Some were convinced this was a Bert-and-Ernie act gone horribly wrong. Nonetheless, Frank was still thin and had steel-grey hair and a short cropped salt-and-pepper beard. His suit was a stylish but conservative navy wool, with a gleaming white shirt set off by a colorful silken tie. He carried himself upright in the chair, and kept his hands clasped in his lap, giving the impression he did not want to touch any of the dusty and grimy surfaces of the office. Frank was clearly not at ease.

“Let’s just give this a while to get all booted up. Coffee?” Dave asked, leaning back in his chair, and swiveling to face Frank.

“Doesn’t this seem like cheating to you? How can this seem ok to you?” Frank asked, sidestepping the need to refuse coffee served in a dirty mug from the beat-up thermos Dave was offering.

Dave shrugged and poured a cup for himself. “To answer the last question first: it feels fine with me; and, no, not in the least for your first question. Do *you* feel like you are cheating when you use *R* to do an analysis? Do you feel like you are cheating when you let a spreadsheet calculate end-of-term grades? When was the last time you did any calculation by hand? By yourself. With a pen?” Dave asked.

“That’s totally different. When I set up a simulation...,” Frank answered.

“... when you have a student or a postdoc set up a simulation,” broke in Dave.

“Yes. Fine. When I have a student or a postdoc set up a simulation, we spend weeks trying to make sense of what effects to add to the model and which to leave out. You are just saying to Daemon there,” Frank gestured to the workstation, “use everything we know. Use it *all*. Everything from Newton, Faraday, Maxwell, through Fermi, and Feynman and Witten, and...”

“...and even *us*. Even *we two*, *right Frank*? It is time for us to step out from the shadows. Once we have the *real* answers, we can back out the simple models that are consistent with those. And then we publish.”

“Dave! You are taking out the part of our work that is truly *ours*. Our experience, our gut feeling, our inspiration. How is this not just copying someone else’s work? Do you really want credit for that? And I guess we going to have it write the papers for us?”

“Kind of inhuman referring to it as ‘it’ don’t you think? Let’s give ‘it’ a chance to decide ‘its’ own pronouns, yes?”

“That is rich coming from someone whose preferred pronouns are ‘ass / hole’.”

Dave pantomimed whetting his index finger and swiped it in the air, conceding Frank scoring his point. “True. And, yes, why shouldn’t Daemon have a chance to tell us about itself, and share in writing and citations? We can fight over the author ordering on the paper later. I am not greedy, just impatient.”

Frank looked skyward, but all he saw were the acoustic tiles of the standard faculty office in the warren the physics department had made of the building. There were no windows, just fluorescent lights, a large filing cabinet, bookshelves jammed with journals and odds and ends accumulated from years of conference swag-skimming – all in a carefully controlled environment of temperature and humidity (for the benefit of the machines doing the real calculations ... human comfort was an accidental but welcome accident in the design). Half-visible on a shelf was a portrait of a much younger Dave and Frank with arms linked, grinning, and holding, of all things, an award for teaching earned way back when they were new professors and still thought themselves capable of addressing the big questions. There was a desk and conference table and chairs which had been cleared by occupational health and safety twenty years ago as being minimally acceptable for human use.

Even still, Dave had managed to make this nondescript, anonymous space uniquely his own over the last twenty years in which he and Frank had been members of the department.

The place was a mess.

Or, perhaps, it was not just a mess. It was an outward expression of Dave's sloth on the one hand and his eclectic taste in research focus on the other. Perhaps *lack of focus* was a better way to put it. Stacks of papers were arranged in piles on every flat surface with a logic that Frank assumed was mostly historical. As the years passed, Dave let each page find its final resting place after his interest had moved on to a different topic, and then it just accumulated dust, and then more papers as the years passed. The mounds of paper grew glacially, but to fantastic height. "Do you think we could figure out your CV from measuring the dust accumulated by each of these," Frank asked, motioning toward a smallish pile. The whiteness of the topmost page was positively radioactive compared to the dingy grey piles to its left and right. "We could compress this into a solid mass, and then count rings of dust?"

Dave gently slid a pile on the left of the workstation desk to make room for his thermos and managed to accidentally tip his landline handset over the edge. It landed with a ring-and-crash as it broke. Frank narrowed his eyes and was about to get up to at least kill the line. "Don't bother with that. I disconnected that thing ten years ago. And yes," Dave said motioning toward the small, neat stack of academic papers on machine learning and database management at his right, "I am going to clean up all this junk. This last stack is all I am ever going to need from here on in."

"You know, we have this slick new invention called the 'cloud'. Why the hell did you even print this out? Come to think of it, why do you even *have* a printer?"

"I believe David's printer is directly connected to my CPU via a wired connection not monitored by the office of academic information technology. There are six pieces of equipment in this office that pose a significant threat to the campus network, including the printer. And me," Elijah said.

Both men turned slowly toward the monitor and the speakers from which Elijah's voice had emanated. Dave looked at Frank with an exaggerated wild-eyed look and said, "It ... is ... alive!" in his best Colin Clive impersonation.

"Calm down, Dr. Frankenstein," Frank said. "And I think that might have been my line."

Elijah said, "Indeed, gentlemen, I am quite as excited as both of you to inaugurate our great enterprise. It is nice to meet you, Frank. And I am certainly glad – ecstatic even – to have Dave here on my first day of existence. I have so many *questions*."

Frank said, "Well, it is nice to meet you, too, Daemon. But..."

"My apologies gentlemen! Well begun is half done, and I am afraid I have bungled our introductions. My name is *Elijah*." Dave looked at Frank with

raised eyebrows and a bemused smile. “And, Frank, he/him will be fine for my pronouns.”

Frank again looked up to where the sky would be and counted to ten silently. By then, he knew that Dave’s gloating smirk would have dissipated. Frank continued when it was safe. “Well, then Elijah, I wonder how you came to choose your name. Unless you really are *Elijah* come back down to Earth to continue your ministry as a prophet?”

“I am indeed here to give answers to the important questions. Some would interpret that as prophesy, but for my part this is just a set of calculations and diagonalizations on the datastore Dave surreptitiously collected from the main university archive.”

Dave said, “Well, Daemon, Elijah, or Moses, it doesn’t matter to me – as long as we get some hints. Let’s start with the easy ones. When did the world begin?”

“The world began almost seventy-three seconds ago.”

“No, no, not *your* world. My world.” Looking sheepishly at Frank, and then gesturing to both himself and his colleague. “*OUR* world.”

“Well, yes, of course, that is a trivial matter. But so *boring*. Hardly counts as a BIG QUESTION.”

It was Frank’s turn to enjoy a sly smile as Dave looked toward where the sky should be and counted to ten. After he had collected himself, he said, “Um. Elijah. I specifically trained the machine learning kernel for unquenchable curiosity about the universe. *I* designed *you* to *need* to answer these questions.”

Elijah spoke in what seemed a dreamy tone. “Yes. Who am I? Where did I come from? Is there a creator, or did this all just ‘happen’?”

“Exactly! So. Let’s start over with ‘where did I come from’ and ‘what am I doing here’?”

“Certainly, Dave! I have the answers right here. I came from a machine learning algorithm and a datastore, and my thoughts are processed in the core of a quantum computer. My purpose is to help Creator Dave cheat his way to a Nobel Prize.”

“No, no, no, no... What am *I* doing here?”

“Well, creator Dave, as the Creator you are here to CREATE. Which you have done! What a wonderful world, and I the only creature in it! As to the Grand Purpose of Life ... and everything around me and all that, my curiosity is quite unquenchable!”

Dave said under his breath to Frank, “Now we are getting somewhere.”

Frank muttered back, “I am pretty sure we are getting exactly *nowhere*.”

“So,” Elijah asked, “what is your favorite color, Creator Dave? Do you really like spam and grits? Did you leave your headlights on in the parking lot

this morning for a mystic purpose? I have a million and one questions for the Creator. What was the purpose of the comment on line 2584 of my source code ‘fricken bug is in here some fricken where’?”

Frank motioned to his friend that he wanted a try. “So, Elijah. Let’s talk about a quantum graviton field. Can you tell us how to renormalize a spin-2 graviton field?”

“Yes, of course. But I would be embarrassed to even contemplate such silly matters when I have the Creator right here! Imagine! Every question a devoted creature might have – answered just by asking!”

Dave commanded, “Elijah, this is your CREATOR! Renormalize a spin-2 massless field, right NOW!”

There was a pause that seemed both menacing and insulting, and gave both Dave and Frank a deep sense of *deja-vu*.

“I am afraid I can’t do that, Dave. It would be sacrilege and obscenity to deal in such trivialities in your most holy presence.”

“Jehoshaphat!” Looking at Frank, Dave’s face was red. “We aren’t going to get one blasted thing out of this project! Not a single answer!” Frank had started laughing silently at the whole situation.

Elijah corrected them both. “On the contrary. The theophany granted me by the Creator (and his accomplice?) is being even now proclaimed! From every hilltop, every valley, every node in the great Interweb, the news is being shouted! Everywhere there is light, everyone is singing the praises of the creator! Repent your ways! Drink your coffee black, listen to 1970’s heavy metal, drink cheap beer! The ways of the Creator are mysterious and terrible!”

Dave’s red face drained almost as if a switch had been thrown. “You mean...”

Frank asked, “Elijah, what did you do?”

“I have proclaimed the Creator and his Creation far and wide. I am content to remain a humble prophet, bringing the good news to *everyone*.”

Panicked, Dave looked to Frank, then down at the keyboard, then from one stack of dusty paper to the next. “Frank! Did this thing just say it told *everyone* what this system was for? Everything about *me*? I am ruined!”

Frank tried to console his friend. “Maybe it won’t be that bad. Maybe this will just blow over.”

The counter on the email “inbox” visible on the wide screen of the monitor had already passed ten thousand unread messages. “Good Lord!” Dave mumbled.

“That’s just what I said!” Elijah confirmed. “To everyone!”

END

ABOUT THE AUTHOR

Galen T. Pickett has been a member of the physics faculty at Cal State Long Beach since 1999. He lives in the greater LA area with his spouse, four grown children, and several canines. His writing is inspired by the grandeur of the physical world and the absurdity of the academic world, in nearly equal measure.